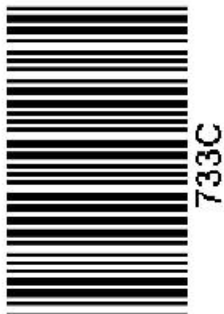


کد کنترل

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برای آشنایی با منابع زبان عمومی برای کسب درصد بالا کلیک کنید



آزمون ورودی دوره‌های کارشناسی ارشد ناپیوسته داخل - سال ۱۴۰۰

صبح پنجشنبه



«اگر دانشگاه اصلاح شود مملکت اصلاح می‌شود.»
امام خمینی (ره)

جمهوری اسلامی ایران
وزارت علوم، تحقیقات و فناوری
سازمان سنجش آموزش کشور

مهندسی برق - (کد ۱۲۵۱)

مدت پاسخ‌گویی: ۲۷۰ دقیقه

تعداد سؤال: ۱۳۸

عنوان مواد امتحانی، تعداد و شماره سؤالات

ردیف	مواد امتحانی	تعداد سؤال	از شماره	تا شماره
۱	زبان عمومی و تخصصی (انگلیسی)	۳۰	۱	۳۰
۲	ریاضیات (معادلات دیفرانسیل، ریاضیات مهندسی، آمار و احتمال)	۱۵	۳۱	۴۵
۳	مدارهای الکتریکی (۲و۱)	۱۵	۴۶	۶۰
۴	الکترونیک (۲و۱) و سیستم‌های دیجیتال ۱	۱۵	۶۱	۷۵
۵	ماشین‌های الکتریکی (۲و۱) و تحلیل سیستم‌های انرژی الکتریکی ۱	۱۵	۷۶	۹۰
۶	سیستم‌های کنترل خطی	۱۲	۹۱	۱۰۲
۷	سیگنال‌ها و سیستم‌ها	۱۲	۱۰۳	۱۱۴
۸	الکترومغناطیس*	۱۲	۱۱۵	۱۲۶
۹	معدمه‌ای بر مهندسی پزشکی*	۱۲	۱۲۷	۱۳۸

* برای داوطلبان رشته مهندسی پزشکی، انتخاب یکی از این دو درس اجباری است.

استفاده از ماشین حساب مجاز نیست.

این آزمون نمره منفی دارد.

حق چاپ، تکثیر و انتشار سؤالات به هر روش (الکترونیکی و...) پس از برگزاری آزمون، برای تمامی اشخاص حقیقی و حقوقی تنها با مجوز این سازمان مجاز می‌باشد و با متخلفین برابر مقررات رفتار می‌شود.

* داوطلب گرامی، عدم درج مشخصات و امضا در مندرجات جدول ذیل، به منزله عدم حضور شما در جلسه آزمون است.

اینجانب با شماره داوطلبی با آگاهی کامل، یکسان بودن شماره صندلی خود را
 با شماره داوطلبی مندرج در بالای کارت ورود به جلسه، بالای پاسخنامه و دفترچه سؤالات، نوع و کد کنترل درج
 شده بر روی دفترچه سؤالات و پائین پاسخنامه را تأیید می‌نمایم.

امضا:

زبان عمومی و تخصصی (انگلیسی):

PART A: Vocabulary

Directions: Choose the word or phrase (1), (2), (3), or (4) that best completes each sentence. Then mark the correct choice on your answer sheet.

- 1- I ----- the argument because I didn't know enough about the subject.
 1) depicted 2) confronted 3) dropped 4) broached
- 2- Because my husband is a ----- supporter of the high school football team, he donates money to their organization every year.
 1) zealous 2) anomalous 3) receptive 4) successive
- 3- Since the journey is -----, be sure to bring a first-aid kit.
 1) courageous 2) cautious 3) enormous 4) perilous
- 4- The writer's stories appeal to a wide range of people—young and old, ----- and poor, literary and nonliterary.
 1) economical 2) financial 3) affluent 4) elite
- 5- His nostalgic ----- of growing up in a small city are comical, though they are perhaps embellished for comic effect.
 1) impacts 2) accounts 3) entertainments 4) bibliographies
- 6- On a chilly night, you might like to curl up by the fireside and ----- a cup of hot chocolate while reading one of Thurber's books.
 1) imbibe 2) amalgamate 3) relieve 4) fascinate
- 7- Although Mr. Jackson was -----, he attempted to be jovial so that his colleagues at the meeting wouldn't think there was a problem.
 1) unpretentious 2) painstaking 3) apprehensive 4) attentive
- 8- Obviously the network is overreacting and engaging in ----- when they say "55 million people are in danger!" for normal thunderstorms.
 1) distinction 2) exaggeration 3) expectation 4) justification
- 9- My high school biology teacher loved to ----- from science into personal anecdotes about his college adventures.
 1) evolved 2) converted 3) reversed 4) digressed
- 10- Landing a plane on an aircraft carrier requires a great deal of -----, as you can crash if you miss the landing zone by even a little bit.
 1) precision 2) innovation 3) superiority 4) variability

PART B: Cloze Test

Directions: Read the following passage and decide which choice (1), (2), (3), or (4) best fits each space. Then mark the correct choice on your answer sheet.

For some time now, medical scientists have noted an alarming increase in diseases of the heart and circulation among people who smoke cigarettes. (11) ----- in the bloodstream causes blood vessels to contract, thus (12) ----- circulation, which eventually leads to hardening of the arteries. (13) ----- the arteries stiffen, less blood reaches the brain, and the end result of this slowdown is a cerebral hemorrhage, commonly (14) ----- to as a "stroke". In addition, (15) ----- reduces the ability of the hemoglobin to release oxygen, resulting in shortness of breath.

- 11- 1) The presence of tobacco is found
 2) The presence of tobacco it is found
 3) To be found the presence of tobacco
 4) It has been found that the presence of tobacco
- 12- 1) slows 2) to slow 3) slowing 4) it slows
- 13- 1) So 2) As 3) Afterwards 4) Due to
- 14- 1) referred 2) that referred 3) referring 4) it is referred
- 15- 1) bloodstream's tobacco 2) the tobacco in bloodstream it
 3) tobacco in the bloodstream which 4) tobacco in the bloodstream

PART C: Reading Comprehension

Directions: Read the following three passages and answer the questions by choosing the best choice (1), (2), (3), or (4). Then mark the correct choice on your answer sheet.

PASSAGE 1:

A photovoltaic panel used as an energy source is very capricious, because the power of the electric current obtained from the panel will depend on the intensity of the incident light. Additionally, the load current also remains an important factor. Users of this energy source in most cases are not able to obtain constant lighting or a constant load. Usually, the panels are fixed in one spot and they are rarely placed on revolving supports that follow the sun. As a result, sunlight falls on the panel surface at different angles. In addition, the sun can be obscured by clouds. The load is not constant, but it usually varies according to the needs of the users. Under such conditions, the voltage on the panel terminals will also undergo significant changes.

Usually, users of the power network expect stable voltage, as they do not want to worry about its fluctuations. If, for example, it is 12 V DC, then changes are expected to be rather small, 2-3% of the nominal value at the most. Freely available energy sources are rarely capable of providing such power supply conditions. Therefore, properly constructed voltage converters are used as the intermediary between these sources and the user.

Unlike "standard" DC/DC converters for power supply - and depending on the target application - converters working with renewable energy sources must offer the right

parameters to match the "caprices" of the source. The most important of these are a wide range of input voltages, suitable input resistance and high breakthrough voltage between input and output, usually at least several hundred volts.

The demand for "green energy" has resulted in devices and products designed for its acquisition being produced by many competing companies. An average user of a panel will be interested mainly in ready-made plug & play modules attached to the panels, but, on the other hand, electronic engineers may be searching for converter modules designed to be integrated into user's own devices. The target applications may include illuminated traffic signs, monitoring devices or systems operating within IoT networks.

- 16- What does the passage mainly discuss?
 1) Stable voltage
 2) Green energy
 3) Photovoltaic panels
 4) Capricious energy sources
- 17- According to paragraph 1, which of the following does NOT affect the reliability of the energy provided by a photovoltaic panel?
 1) Panel height
 2) Light intensity
 3) Load current
 4) Weather conditions
- 18- The word "intermediary" in paragraph 2 is closest in meaning to -----.
 1) intruder
 2) mediator
 3) interrogator
 4) seeker
- 19- It can be inferred from the passage that standard DC/DC converters are -----.
 1) not popular among users
 2) used with capricious energy sources
 3) made to offer a wide range of input voltage
 4) not normally used with renewable energy sources
- 20- Why does the author mention "monitoring devices" in paragraph 4?
 1) To compare them with traffic signs
 2) To argue that they should use green energy
 3) To discuss how they are connected to IoT networks
 4) To give an example of the uses of photovoltaic panels

PASSAGE 2:

Most sources of illumination generate light over an appreciable period, and indeed if an object is lit for a very brief time (less than 1/25 second), the human eye will not react in time to see the object. A photographic emulsion---that is, a light-sensitive coating on photographic film, paper, or glass---will, however, record much shorter bursts of light. A photographic flash can therefore be used to capture high-speed movement on film as well as to correct deficiencies of the normal surrounding lighting. Photoflash is now generated electronically, but the earliest form, first used in 1864, was a paper bag containing magnesium wire and some oxygen-rich substance, such as potassium chlorate. When the bag was ignited, the metal burned with an intense flash. A contemporary observer reported that "this quite unsafe device seems to have done nothing worse than engulf the room in dense smoke and lead to pictures of dubious quality and odd poses."

The evolution of the photoflash was slow, flashbulbs, containing fine wire made of a metal, such as magnesium or aluminum, capable of being ignited in an atmosphere of pure oxygen at low pressure, were introduced only in the 1920's. In the earliest type,

the metal was separated from the oxygen by a thin glass bulb. The flash was fired by piercing the bulb and allowing the oxygen to come into contact with the metal, which ignited spontaneously. Later bulbs were fired by an electric battery, which heated the wire by passing a small current through it. Other combinations, such as the pairing of oxygen difluoride with zirconium, have also been used. In each case enough energy is given out to heat the oxidizable metal momentarily to a white-hot emission of visible light. The smoke particles are so small that they cool rapidly; but since they are white, they contribute to the brilliance by reflecting the light from their still-glowing neighbors. A slightly bigger form of the metal will burn for a longer time.

- 21- According to paragraph 1, if an object is lit for shorter than 1/25 second, it -----.
- 1) cannot be recorded on film
 - 2) is not visible by the naked eye
 - 3) is still considered an appreciable object to react to
 - 4) cannot be considered a source of illumination
- 22- All of the following were used in the earliest form of the photoflash EXCEPT -----.
- 1) paper
 - 2) aluminum
 - 3) magnesium
 - 4) potassium chlorate
- 23- The word "it" in paragraph 2 refers to -----.
- 1) wire
 - 2) current
 - 3) battery
 - 4) bulb
- 24- According to paragraph 2, what was the function of the smoke particles in the photoflash?
- 1) Fast cooling
 - 2) Hot emission
 - 3) Color reproduction
 - 4) Bright illumination
- 25- Which of the following is defined in the passage?
- 1) Magnesium wire (paragraph 1)
 - 2) High-speed movement (paragraph 1)
 - 3) Photographic emulsion (paragraph 1)
 - 4) Electric battery (paragraph 2)

PASSAGE 3:

For millennia, people have harnessed the power of the wind to accomplish tasks. For example, merchants once relied on the wind to sail the world. Also, old windmills, once used to mill cereals, are an iconic part of Holland's landscape. With our lives centered around electricity, modern scientists have found innovative ways to convert the kinetic energy from the wind into electric power.

Today, around the world, the wind-electric turbine is becoming as iconic as the Dutch windmill. A wind turbine typically consists of a large, three-bladed propeller, called a rotor, atop a tower that's high enough that nothing blocks it from the wind. The turbine has a drive train similar to a car's engine that includes an electric generator. The electricity generated gets added to the electric grid, which powers hundreds of homes and businesses in a geographic location.

One small wind turbine can power a single home or small business. These smaller versions have rotors between 8 and 25 feet (2.4 and 7.6 meters) in diameter and can stand up to 30 feet (9.1 meters) in the air. Wind farms are becoming increasingly common in large open spaces. You can see some of these farms during a drive or flight through the country, with thousands of giant white wind turbines stretching across hillsides as far as the eye can see.

- 26- The author mentions merchants relying on the wind to sail the world as an example of ----.
- 1) how the power of the wind was used in the past
 - 2) how difficult it was to perform certain tasks in the past
 - 3) people who did dangerous tasks for money in the past
 - 4) why harnessing the power of the wind was no easy task in the past
- 27- What is the main function of the second paragraph?
- 1) Explaining what a rotor is
 - 2) Illustrating the importance of electricity
 - 3) Describing how the wind-electric turbine works
 - 4) Introducing innovative ways to convert the energy from the wind into electric power
- 28- The word "which" in paragraph 2 refers to -----.
- 1) electricity
 - 2) the electric grid
 - 3) the wind-electric turbine
 - 4) adding electricity to the electric grid
- 29- It can be understood from paragraph 3 that in order to power a small town -----.
- 1) wind-electric turbines cannot be used
 - 2) several businesses should invest in wind turbines
 - 3) more than one small wind turbine is required
 - 4) the wind turbines used should be shorter than 7.6 meters
- 30- According to the passage, wind farms are more common -----.
- 1) in rocky mountains
 - 2) among small businesses
 - 3) near towns and cities
 - 4) in large open spaces

ریاضیات (معادلات دیفرانسیل، ریاضیات مهندسی، آمار و احتمال):

۳۱ اگر $y(x) = \frac{2}{x}$ یک جواب خصوصی معادله دیفرانسیل $y' + 2x^{-2} = 2x^{-1}y - y^2$ با شرط $x \neq 0$ باشد، جواب عمومی

معادله، کدام است؟

$$y = \frac{2}{x} + \frac{2x^2}{x^2 + c} \quad (1)$$

$$y = \frac{2}{x} + \frac{1}{-x + cx^2} \quad (2)$$

$$y = \frac{2}{x} + \frac{x^2 + c}{2x^2} \quad (3)$$

$$y = \frac{2}{x} + \frac{-1 + cx^2}{x} \quad (4)$$

۳۲ هرگاه جواب معادله دیفرانسیل $x^2 y'' - 2y = 0$ با شرایط نهایی $y'(1) = \beta$ و $y(1) = 1$ در نزدیکی $x = 0$ کران دار باشد، مقدار β ، کدام است؟

(۱) ۴

(۲) ۳

(۳) ۲

(۴) ۱



با به اطلاع می رساند، کلید اولیه سوالات که در این سایت قرار گرفته است، غیر قابل استناد است و پس از دریافت نظرات داوطلبان و صاحب نظرات کلید نهایی سوالات تهیه و بر اساس آن کارنامه داوطلبان استخراج خواهد شد. در صورت تمایل می توانید حداکثر تا تاریخ 1399/05/22 با مراجعه به سامانه پاسخگویی اینترنتی (request.sanjesh.org) نسبت به تکمیل فرم "اعتراض به کلید سوالات"/"آزمون کارشناسی ارشد سال 1400" اقدام نمایید. لازم به ذکر است نظرات داوطلبان فقط تا تاریخ مذکور و از طریق فرم ذکر شده دریافت خواهد شد و به موارد ارسالی از طریق دیگر (نامه مکتوب یا فرم عمومی در سامانه پاسخگویی و ...) با پس از تاریخ اعلام شده رسیدگی نخواهد شد.

عنوان دفترچه	نوع دفترچه	گروه امتحانی
مهندسی برق	C	فنی و مهندسی

FastZaban.com

شماره سوال	گزینه صحیح	شماره سوال	گزینه صحیح	شماره سوال	گزینه صحیح	شماره سوال	گزینه صحیح	شماره سوال	گزینه صحیح
1	3	31	2	61	4	91	1	121	4
2	1	32	3	62	4	92	2	122	1
3	4	33	4	63	2	93	2	123	2
4	3	34	1	64	3	94	1	124	3
5	2	35	4	65	1	95	3	125	2
6	1	36	2	66	1	96	3	126	4
7	3	37	4	67	4	97	2	127	3
8	2	38	2	68	1	98	1	128	4
9	4	39	1	69	4	99	1	129	1
10	1	40	3	70	1	100	4	130	1
11	4	41	3	71	3	101	1	131	2
12	3	42	3	72	1	102	2	132	3
13	2	43	4	73	4	103	1	133	2
14	1	44	2	74	2	104	2	134	3
15	4	45	1	75	4	105	3	135	2
16	3	46	2	76	1	106	3	136	4
17	1	47	3	77	2	107	4	137	1
18	2	48	2	78	4	108	4	138	4
19	4	49	4	79	3	109	1	139	گزینه 4
20	4	50	3	80	2	110	1	140	گزینه 4
21	2	51	1	81	1	111	2	141	گزینه 4
22	2	52	4	82	3	112	3	142	گزینه 4
23	1	53	3	83	4	113	2	143	گزینه 4
24	4	54	1	84	3	114	4	144	گزینه 4
25	3	55	1	85	2	115	2	145	گزینه 4
26	1	56	1	86	1	116	3	146	گزینه 4
27	3	57	2	87	2	117	4	147	گزینه 4
28	3	58	3	88	1	118	1	148	گزینه 4
29	3	59	3	89	4	119	1	149	گزینه 4
30	4	60	4	90	2	120	3	150	گزینه 4

دانلود رایگان نرم افزارهای آموزشی

دانلود منابع زبان

های رایگان آموزشی